

# EXHIBIT 5

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/850,124	BALACHANDRAN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Eva Yi Zheng	2634	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE filed on 10/14/05.
2. ☒ The allowed claim(s) is/are 1, 3, 5, 6, 8-10, 12-17, 19, 21, 22, and 24-26.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____.   |

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## **DETAILED ACTION**

### *Request for Continued Examination*

1. The request filed on Oct 14, 2005, for a Request for Continued Examination (RCE) under 37 CFR 1.114 based on parent Application No. 09/850,124 is acceptable and a RCE has been established. An action on the RCE follows.

### ***Allowable Subject Matter***

2. Claims 1, 3, 5, 6, 8-10,12-17,19, 21, 22, and 24-26 are allowed.
3. The following is an examiner's statement of reasons for allowance:

None of the prior art teaches or suggests a frequency hopping method as the current application. In specific, pseudorandomly selecting frequency from a set of N (total number of frequencies available) frequencies, where prior selected frequencies are prohibited from being selected again from the hopping set. Thus, repetition of frequency over time period T is reduced.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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**Conclusion**


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Y Zheng whose telephone number is 571-272-3049. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eva Yi Zheng  
Examiner  
Art Unit 2634

December 15, 2005

  
**STEPHEN CHIN**  
**SUPERVISORY PATENT EXAMINE**  
**TECHNOLOGY CENTER 2600**

<b>FORM HDP-1449 (Based on Form PTO-1449)</b>  <b>PATENT AND TRADEMARK OFFICE</b> <b>INFORMATION DISCLOSURE CITATION</b> (Use several sheets if necessary)  Sheet 1 of 1	<b>ATTORNEY DOCKET</b>	<b>SERIAL NO.</b>
	29250-000873/US	09/850,124
	<b>APPLICANT</b>	
	K. BALACHANDRAN et al.	
	<b>FILING DATE</b>	<b>GROUP</b>
	May 7, 2001	2681

**U.S. PATENT DOCUMENTS**

Ref. Desig.	Examiner's Initials	Document Number	Date	Name	Class/ Subclass	(If appropriate) Filing Date
	E-Z	5235613	08/1993	BROWN et al.		

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**FOREIGN PATENT DOCUMENTS**

Ref. Desig.	Examiner's Initials	Document Number	Date	Country	Class/ Subclass	Translation Yes	No
	E-Z	WO 01/11795	02/2001	WIPO	←	XXX	
	E-Z	GB 2340694	02/2000	UNITED KINGDOM	—	XXX	
	E-Z	WO 01/29984	04/2001	WIPO	✓	XXX	

**OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, etc.)**

Ref. Desig.	Examiner's Initials	

Examiner:

Date Considered:

5/4/04

EXAMINER: Please initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

OK To enter this amendment  
S. Ch  
12/24/05  
filed 4/5/2005Application No. 09/850,124  
Docket No. 29250-000873/US**IN THE CLAIMS**

Kindly amend claims 1, 3, 5, 8, 9, 10, 13, 14, 15, 17, 19, 21, 22, 24 and 26 as follows.

The following is a complete listing of revised claims with a status identifier in parenthesis.

**LISTING OF CLAIMS**

1. (Currently Amended) A method for use in wireless equipment, the method comprising the steps of:

transmitting signals using frequency hopping over a time period  $T$ , by pseudorandomly selecting a frequency from a set of  $N$  frequencies such that over at least a portion of the time period  $T$ , the frequency selection is constrained to less than the  $N$  frequencies and such that at least one of the selected frequencies is prohibited from subsequent selection in at least a portion of the time period  $T$  [|.].

where  $N$  is the total number of frequencies available for frequency hopping.

2. (Cancelled)

3. (Currently Amended) A method of frequency hopping for use in wireless equipment, the method comprising the steps of:

storing a set of hopping frequencies; and pseudorandomly selecting frequencies from the set of hopping frequencies over a time period  $T$  by limiting the available frequencies from the

hopping set over at least a portion of the time period  $T$  such that at least one of the selected frequencies is prohibited from subsequent selection in at least a portion of the time period  $T$ .

4. (Cancelled)

5. (Currently Amended) A method of frequency hopping for use in wireless equipment, the method comprising the steps of:

initializing a hopping set to a size of  $F$  frequencies, the hopping set used to pseudorandomly select therefrom hopping frequencies over a time period  $T$ ; and

reducing the size of the hopping set over a portion of the time period  $T$  by at least one frequency such that at least one of the selected frequencies is prohibited from subsequent selection in at least a portion of the time period  $T$  [1.],

where  $F$  is the number of frequencies in a hopping state,  $H$ , over which a wireless endpoint is constrained to hop.

6. (Currently Amended) A method of frequency hopping for use in wireless equipment, the method comprising the steps of:

initializing a hopping set to a size of  $N$  frequencies, the hopping set used to select therefrom hopping frequencies over a time period  $T$ ; and

pseudorandomly selecting frequencies from the hopping set over the time period  $T$  such that at least one of the selected frequencies is prohibited from subsequent selection in at least a portion of the time period  $T$ .

where  $N$  is the total number of frequencies available for frequency hopping.

7. (Cancelled)

8. (Currently Amended) A method of frequency hopping for use in wireless equipment, where a hopping set is initialized to a size of  $N$  frequencies, the hopping set used to select therefrom hopping frequencies over a time period  $T$ , the method comprising the steps of:

determining a hopping index value;

modifying the hopping index value by at least the modulo of a number  $F$ , where  $F \leq N$ ;

pseudorandomly selecting a hopping frequency from the hopping set of a function of the modified hopping index value;

adjusting the order of the hopping set such that the selected hopping frequency is now at a position corresponding to the value of  $F$  and such that at least one of the selected frequencies is prohibited from subsequent selection in at least a portion of the time period  $T$ ;

reducing the value of  $F$ ; and

returning to the determining step.

where  $N$  is the total number of frequencies available for frequency hopping and where  $F$  is the number of frequencies in a hopping state,  $H$ , over which a wireless endpoint is constrained to hop.

9. (Currently Amended) The method of claim 8 wherein when the value of  $F$  reaches a predefined minimum value, further including the step of shifting the hopping set in a cyclical direction by a value equal to a difference between a predefined maximum value for  $F$  and the minimum value, modulo  $N$ .

10. (Currently Amended) A method for frequency hopping for use in wireless equipment, the method comprising the steps of:

initializing a hopping set to a size of  $N$  frequencies, the hopping set used to select therefrom hopping frequencies over a time period  $T$ ;

dividing the hopping set into an allowable frequency set and a prohibited frequency set;

pseudorandomly selecting frequencies from the allowable frequency set;  
and

after at least one frequency selection, adjusting the membership in the allowable frequency set and the prohibited frequency set such that at least one of the selected frequencies is prohibited from subsequent selection in at least a portion of the time period  $T$  [(.)],

where  $N$  is the total number of frequencies available for frequency hopping.

11. (Cancelled)

12. (Original) The method of claim 10 wherein membership in the allowable frequency set and the prohibited frequency set at a current time is derived from knowledge of the allowable frequency set and the prohibited frequency set at an earlier time.

13. (Currently Amended) The method of claim 10 wherein knowledge of the allowable frequency set and the prohibited frequency set at a particular time is provided by one wireless endpoint to ~~the other~~ another wireless endpoint through explicit signaling.

14. (Original) The method of claim 10 wherein all  $N$  frequencies in the hopping set are assumed allowable at pre-determined time instants.

15. (Currently Amended) A pseudorandom frequency hopping method for use in wireless equipment, the method comprising the steps of:

dividing a hopping set into an allowable frequency set and a prohibited frequency set; and

transmitting information associated with the division of the hopping set to another wireless endpoint such that at least one of the selected frequencies is prohibited from subsequent selection in at least a portion of the time period

$T$ .

16. (Original) The method of claim 15 wherein the transmitted information enables the other wireless endpoint to derive the allowable frequency set.

17. (Currently Amended) A wireless endpoint comprising:  
a transmitter for transmitting signals using frequency hopping over a time period  $T$ ; and

a processor for pseudorandomly selecting a frequency from a set of  $N$  frequencies such that over at least a portion of the time period  $T$ , the frequency selection is constrained to less than the  $N$  frequencies and such that at least one of the selected frequencies is prohibited from subsequent selection in at least a portion of the time period  $T$  [.],

where  $N$  is the total number of frequencies available for frequency hopping.

18. (Cancelled)

19. (Currently Amended) A wireless endpoint comprising:  
a memory for storing a set of hopping frequencies; and  
a processor for pseudorandomly selecting frequencies from the set of hopping frequencies over a time period  $T$  by limiting the available frequencies from the hopping set over at least a portion of the time period  $T$  such that at least one of the selected frequencies is prohibited from subsequent selection in at least a portion of the time period  $T$ .

20. (Cancelled)

21. (Currently Amended) A wireless endpoint comprising:

a memory for storing a hopping set comprising  $F$  frequencies, the hopping set used to pseudorandomly select therefrom hopping frequencies over a time period  $T$ ; and

a processor for reducing the size of the hopping set over a portion of the time period  $T$  by at least one frequency such that at least one of the selected frequencies is prohibited from subsequent selection in at least a portion of the time period  $T$  [(.)]<sub>1</sub>,

where  $F$  is the number of frequencies in a hopping state,  $H$ , over which a wireless endpoint is constrained to hop.

22. (Currently Amended) A wireless endpoint comprising:

a memory for storing a hopping set comprising  $N$  frequencies, the hopping set used to select therefrom hopping frequencies over a time period  $T$ ; and

a processor for pseudorandomly selecting frequencies from the hopping set over a time period  $T$  such that at least one of the selected frequencies is prohibited from subsequent selection in at least a portion of the time period  $T$  [(.)]<sub>1</sub>,

where  $N$  is the total number of frequencies available for frequency hopping.

23. (Cancelled)

24. (Currently Amended) A wireless endpoint comprising:

a memory for storing a hopping set comprising  $N$  frequencies, the hopping set used to pseudorandomly select therefrom hopping frequencies over a time period  $T$ ; and

a processor for (a) determining a hopping index value, (b) modifying the hopping index value by at least the modulo of a number  $F$  where  $F \leq N$ , (c) selecting a hopping frequency from the hopping set as a function of the modified hopping index value, (d) adjusting the order of the hopping set such that the selected hopping frequency is now at a position corresponding to the value of  $F$  such that at least one of the selected frequencies is prohibited from subsequent selection in at least a portion of the time period  $T$ , (e) reducing the value of  $F$ ; and (f) returning to (a) [1.],

where  $N$  is the total number of frequencies available for frequency hopping and where  $F$  is the number of frequencies in a hopping state,  $H$ , over which a wireless endpoint is constrained to hop.

25. (Original) The wireless endpoint of claim 24 wherein when the value of  $F$  reaches a predefined minimum value, the processor further shifts the hopping set in a cyclical direction by a value equal to a difference between a predefined maximum value for  $F$  and the minimum value, modulo  $N$ .

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26. (Currently Amended) A wireless endpoint comprising:  
a memory for storing a hopping set comprising  $N$  frequencies, the hopping set used to select therefrom hopping frequencies over a time period  $T$ , and

a processor for (a) dividing the hopping set into an allowable frequency set and a prohibited frequency set, (b) pseudorandomly selecting frequencies from the allowable frequency set, and (c) after at least one frequency selection, adjusting the membership in the allowable frequency set and the prohibited frequency set such that at least one of the selected frequencies is prohibited from subsequent selection in at least a portion of the time period  $T$  [(.)],

where  $N$  is the total number of frequencies available for frequency hopping.

27. (Cancelled)